

California Energy Commission

## STAFF REPORT

# LOCALIZED HEALTH IMPACTS REPORT

Addendum 2 for Selected Projects Awarded  
Funding Through the Alternative and Renewable  
Fuel and Vehicle Technology Program Under  
Solicitation GFO-15-605 – Light-Duty Vehicle  
Hydrogen Refueling Infrastructure

California Energy Commission

Gavin Newsom, Governor



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# California Energy Commission

Jonathan Bobadilla

**Primary Author**

Phil Cazel

**Project Manager**

Elizabeth John

**Office Manager**

**ADVANCED FUEL PRODUCTION OFFICE**

Kevin Barker

**Deputy Director**

**FUELS AND TRANSPORTATION DIVISION**

Drew Bohan

**Executive Director**

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# ADDENDUM 2

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The Localized Health Impacts (LHI) Report for Selected Projects Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation GFO-15-605 was posted May 15, 2017 (CEC-600-2017-006).<sup>1</sup> This addendum uses the same approach to assess the LHI for project location changes, additions, or removals.

The awardee FirstElement Fuel, Inc. proposes changing three project location from what was in the original LHI report under this solicitation. Equilon Enterprises LLC's (dba Shell Oil Products) proposed project located in the city of Walnut Creek has been removed from this solicitation, as it no longer meets the solicitation requirements. The project site location changes are described in Table 1, along with environmental justice (EJ) indicators (See Appendix A).<sup>2</sup> The specifications for the proposed hydrogen refueling stations are similar to the originally proposed refueling stations.

**Table 1: Original and New Locations Along With EJ Indicators**

Grantee	Original Location	Proposed New Location	EJ Indicator(s)
FirstElement Fuel, Inc.	1866 Lincoln Boulevard Huntington Beach, CA 90405	104 North Coast Highway Laguna Beach, CA 92651	N/A
FirstElement Fuel, Inc.	16001 Beach Boulevard Santa Monica, CA 92647	11284 Venice Boulevard Culver City, CA 90230	Unemployment
FirstElement Fuel, Inc.	5333 University Drive Irvine, CA 92612	18480 Brookhurst Street Fountain Valley, CA 92708	Minority
Equilon Enterprises LLC (dba Shell Oil Products)	900 N Main Street Walnut Creek, CA 94597	N/A	N/A

Source: California Energy Commission staff

## Air Quality and EJ Indicators

The newly proposed hydrogen refueling stations in the city of Laguna Beach, Culver City, and Fountain Valley are all in nonattainment zones<sup>3</sup> for ozone, particulate matter

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1 Brecht, Patrick. 2017. *Localized Health Impacts Report For Selected Projects Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation GFO-15-605 - Light-Duty Vehicle Hydrogen Refueling Infrastructure*. California Energy Commission, Fuels and Transportation Division. Publication Number: CEC-600-2017-006.

2 EJ indicators developed by the U.S. Environmental Protection Agency (EPA), Office of Policy. Available at <https://www.epa.gov/ejscreen/environmental-justice-indexes-ejscreen>

3 Nonattainment zones are areas designated by the California Air Resources Board (ARB) with at least one violation of an air quality standard for pollutants within the last three years, as of June 2017.

(PM<sup>4</sup>) 2.5, and PM 10, according to California Air Resources Board (CARB) air pollution records. If a project located within a nonattainment zone and has more than one EJ indicator (shown in Table 1) as detailed in Table 2, it is a high-risk community project location, according to the Environmental Justice Screening Method (EJSM)<sup>5</sup> outlined in Appendix A.

A comparison of the proposed project location with the state average and staff's EJ indicator thresholds shown in Table 2. When a project location city has more than one EJ indicator category highlighted and is within a nonattainment zone for pollution, it would be a high-risk community project location (city name would be colored red on Table 2). FirstElement Inc.'s proposed project location in Culver City exceeds staffs EJ indicator threshold for unemployment. While all three of the newly proposed refueling stations are within a nonattainment zone, none has more than one EJ indicator per location. Staff has assessed that the newly proposed project locations do not meet the criteria for high-risk community project locations.

**Table 2: EJ Indicators Compared With California**

	<b>Below Poverty Level (2017)</b>	<b>Black Persons (2017)</b>	<b>American Indian and/or Alaska Native (2017)</b>	<b>Asian and/or Pacific Islander (2017)</b>	<b>Persons of Hispanic or Latino Origin (2017)</b>	<b>Persons Under 5 Years of Age (2017)</b>	<b>Persons Over 65 Years of Age (2017)</b>	<b>Unemployment (November 2018)</b>
California	11.1%	5.8%	0.7%	14.5%	38.8%	6.4%	13.2%	3.9%
EJ Indicator Threshold	>11.1%	>30%	>30%	>30%	>30%	>26.4%	>33.2%	>3.9%
Laguna Beach	2.8%	0.9%	0.1%	5.0%	8.4%	3.4%	22.9%	2.8%
Culver City	4.8%	7.7%	0.6%	16.1%	24.3%	5.7%	15.7%	4.6%
Fountain Valley	5.6%	0.5%	0.3%	33.1%	16.6%	4.7%	18.2%	2.8%

Sources: California Energy Commission staff, Employment Development Department, and U.S. Census Bureau.

## Location Analysis and Community Impacts

### First Element Inc. – Laguna Beach Project

First Element Inc. describes the Laguna Beach project location as a vacant space within a commercial corridor zoned gasoline station. The project will be adjacent to a currently existing gasoline station with a service station and convenience store on the property.

<sup>4</sup> Particulate matter is unburned fuel particles that form smoke or soot and stick to lung tissue when inhaled. The numbers stand for microns in diameter.

<sup>5</sup> California Air Resources Board (CARB), *Air Pollution and Environmental Justice, Integrating Indicators of Cumulative Impact and Socio-Economic Vulnerability Into Regulatory Decision-Making, 2010*. (Sacramento, California) Contract authors: Manuel Pastor Jr., Ph.D., Rachel Morello-Frosch, Ph.D., and James Sadd, Ph.D.

The estimated project-generated emissions would mainly come from trucking in pressurized hydrogen gas to restock the supply of hydrogen to the refueling station, and from hydrogen production at the central reformer plant located at 700 North Henry Ford Avenue, Wilmington, California 90744. For the first five years of operations, it is estimated that 1000 truck delivery trips (81.6 miles per roundtrip) and 300,000 kilograms (kg) of hydrogen fuel will be associated with the Laguna Beach refueling station. Table 3 below quantifies the estimated transport-related pollutant emissions for this project using applicant provided information and ARB's Emission FACTors (EMFAC)<sup>6</sup> data.

**Table 3: Truck Delivery and Hydrogen Station Emissions for Laguna Beach Project**

<b>Pollutant</b>	<b>EMFAC Travel Emissions Rate (grams/per mile)</b>	<b>EMFAC Hydrogen Production Emissions rate (grams/per 1000 kilograms)</b>	<b>5 Year Total Pollutant Estimate in kg*</b>
Nitrogen oxides (NOx)	9.89	0.54	808.64
Sulfur oxides (SOx)	0.02	0.22	2.29
Reactive organic gases (ROG)	0.42	0.27	35.08
Carbon monoxide (CO)	1.59	1.65	134.69
Particulate matter (PM)	0.43	0.77	37.40

Source: FirstElement Inc. and CARB. \*Figures derived from adding the estimated five-year totals from delivery of hydrogen fuel by diesel delivery truck and hydrogen plant emissions; converted to kilograms

There are no expected adverse impacts on air emissions due to potential increases in traffic since the zero-emission fuel cell vehicles are the intended market. A reduction of criteria and toxic pollutants is expected with the adoption of fuel cell vehicles over fossil fuel vehicles.

### **First Element Inc. – Culver City Project**

First Element Inc. describes the proposed Culver City project location as a vacant space within a half-mile of an elementary school and a quarter-mile from a residential and commercial zone. The project will be adjacent to an existing gasoline station with a service station and convenience store on the property. The estimated project-generated emissions would mainly come from trucking in pressurized hydrogen gas to restock the supply of hydrogen to the refueling station and from hydrogen production at the central reformer plant located at 700 North Henry Ford Avenue, Wilmington, California 90744. For the first five years of operations, it is estimated that 1000 truck delivery trips (47.2 miles per roundtrip) and 300,000 kg of hydrogen fuel will be associated with the Culver

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<sup>6</sup> EMFAC data provide emissions and emission rates data for motor vehicle travel. Available at <https://www.arb.ca.gov/emfac>

City refueling station. Table 4 quantifies the estimated transport-related pollutant emissions for this project using applicant-provided information and EMFAC data.

**Table 4: Truck Delivery and Hydrogen Station Emissions for Culver City Project**

Pollutant	EMFAC Travel Emissions Rate (grams/per mile)	EMFAC Emissions Rate (grams/per 1000 kilograms)	Five-Year Total Pollutant Estimate in Kg*
Nitrogen oxides (NOx)	9.89	0.54	468.43
Sulfur oxides (SOx)	0.02	0.22	1.60
Reactive organic gases (ROG)	0.42	0.27	20.63
Carbon monoxide (CO)	1.59	1.65	80.00
Particulate matter (PM)	0.43	0.77	22.61

Source: FirstElement Inc. and CARB. \*Figures derived from adding the estimated five-year totals from delivery of hydrogen fuel by diesel delivery truck and hydrogen plant emissions; converted to kilograms

There are no expected adverse impacts on air emissions due to potential increases in traffic since the zero-emission fuel cell vehicles are the intended market. A reduction of criteria and toxic pollutants is expected with the adoption of fuel cell vehicles over fossil fuel vehicles.

### **First Element Inc. – Fountain Valley Project**

First Element Inc. describes the proposed Culver City project location as a vacant space within a commercial zoned gasoline station. The project will be adjacent to an existing gasoline station with a service station and convenience store on the property. The estimated project-generated emissions would come mainly from trucking in pressurized hydrogen gas to restock the supply of hydrogen to the refueling station and from hydrogen production at the central reformer plant. For the first five years of operations, it is estimated that 1000 truck delivery trips (39.2 miles per round trip) and 300,000 kg of hydrogen fuel will be associated with the Fountain Valley refueling station. Table 5 quantifies the estimated transport-related pollutant emissions for this project using applicant provided information and EMFAC data.

**Table 5: Truck Delivery and Hydrogen Station Emissions for Culver City Project**

Pollutant	EMFAC Travel Emissions Rate (grams/per mile)	EMFAC Emissions Rate (grams/per 1000 kilograms)	Five-Year Total Pollutant Estimate in Kg*
Nitrogen oxides (NOx)	9.89	0.54	389.31
Sulfur oxides (SOx)	0.02	0.22	1.44
Reactive organic gases (ROG)	0.42	0.27	17.27
Carbon monoxide (CO)	1.59	1.65	67.28
Particulate matter (PM)	0.43	0.77	19.17

Source: FirstElement Inc. and CARB. \*Figures derived from adding the estimated five-year totals from delivery of hydrogen fuel by diesel delivery truck and hydrogen plant emissions; converted to kilograms

There are no expected adverse impacts on air emissions due to potential increases in traffic since the zero-emission fuel cell vehicles are the intended market. A reduction of criteria and toxic pollutants is expected with the adoption of fuel cell vehicles over fossil fuel vehicles.

## **Community Impact Summary**

Based on its analysis, staff does not anticipate that the proposed hydrogen refueling stations will have negative impacts on criteria and toxic emissions. While there may be harmful emissions generated from the production and distribution of hydrogen as a fuel source, a net benefit is realized from a zero-emission fuel source such as hydrogen-displacing, petroleum-based fuel sources. The anticipated impacts on the cities where these projects would be located are positive in terms of cleaner air and pollution reductions.

## **Public Comment**

As provided by Title 13, Section 2343 of the California Code of Regulations, a 30-day public review period applies to this LHI report from the date it is posted on the Energy Commission website. The original posting date for this report is listed at:

<https://www.energy.ca.gov/altfuels/documents/index.html>

The Energy Commission encourages comments by email. Please include your name or organization's name in the name of the file. Send comments in either Microsoft® Word format (.doc) or in Adobe® Acrobat® format (.pdf) to [FTD@energy.ca.gov](mailto:FTD@energy.ca.gov).

The public can email comments to [FTD@energy.ca.gov](mailto:FTD@energy.ca.gov) or send them to:

California Energy Commission  
Fuels and Transportation Division  
1516 Ninth Street, MS-44  
Sacramento, CA 95814-5512

All written comments will become part of the public record and may be posted to the Internet.

News media should direct inquiries to the Media and Public Communications Office at (916) 654-4989, or by e-mail at [mediaoffice@energy.ca.gov](mailto:mediaoffice@energy.ca.gov).

# APPENDIX A:

## Localized Health Impacts Report Method

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This LHI report assesses the potential health impacts to communities from projects proposed to receive ARFVTP funding. This LHI report is prepared under the *California Code of Regulations, Title 13, Motor Vehicles, Chapter 8.1 (CCR § 2343)*:

“(6) Localized health impacts must be considered when selecting projects for funding. The funding agency must consider EJ consistent with state law and complete the following:

(A) For each fiscal year, the funding agency must publish a staff report for review and comment by the public at least 30 calendar days prior to approval of projects. The report must analyze the aggregate locations of the funded projects, analyze the impacts in communities with the most significant exposure to air contaminants or localized air contaminants, or both, including, but not limited to, communities of minority populations or low-income populations, and identify agency outreach to community groups and other affected stakeholders.

(B) Projects must be selected and approved for funding in a publicly noticed meeting.”

This LHI report is not intended to be a detailed pollution analysis of proposed projects nor is it intended to substitute for the environmental review conducted during CEQA. This LHI report includes staff’s application of the EJSM developed by the U.S. EPA to help identify projects located in areas where social vulnerability indicators, high exposure to pollution, and greater health risks are present.

High-risk community project locations are identified using data from CARB, the U.S. Census Bureau, and other public agencies. Energy Commission staff analyzes these data to assign EJ indicators for each project location specified in the LHI report. The proposed project location must meet a two-part standard as follows:

### **Part 1 – Environmental Standard:**

- Communities located within an air quality nonattainment zone for ozone, PM 2.5, or PM 10, as designated by the California Air Resources Board for criteria pollutants.

### **Part 2 – Demographic Standard:**

- Communities having more than one of the following EJ indicators for (1) minority, (2) poverty, (3) unemployment, and (4) age. The EJ indicator thresholds are defined by staff as:
  - 1) A minority subset represents more than 30 percent of a given city’s population.
  - 2) A city’s poverty level exceeds the state average poverty level.



- 3) The city (or county if city data is unavailable) unemployment rate exceeds the state average unemployment rate.
- 4) The percentage of people living in a city who are younger than 5 years of age or older than 65 years of age is 20 percent higher than the state average for persons under 5 years of age or over 65 years of age.